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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Anders Swedin

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EXAMINER

BOLOTIN, DMITRIY

ART UNIT

PAPER NUMBER

2629

MAIL DATE

DELIVERY MODE

05/20/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/575,622	Applicant(s) SWEDIN, ANDERS	
	Examiner Dmitriy Bolotin	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>04/13/2006, 01/17/2008</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

It would be of great assistance to the Office if all incoming papers pertaining to a filed application carried the following items:

1. Application number (checked for accuracy, including series code and serial no.).
2. Group art unit number (copied from most recent Office communication).
3. Filing date.
4. Name of the examiner who prepared the most recent Office action.
5. Title of invention.
6. Confirmation number (See MPEP § 503).

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. **Claims 1, 2, 4, 5, 7 and 16** are rejected under 35 U.S.C. 102(e) as being anticipated by Lowles et al. (US 7,388,571).

As to **claim 1**, Lowles discloses a touch sensor, comprising: a display device (LCD 409 of fig. 4) having at least one substrate (substrate 104 of fig. 1) on which at least one display electrode is disposed (electrode 108 of fig. 1) for the display of a shape on the display device (pixel element, col. 3, lines 3 – 6); an interface (SEG driver

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444 of fig. 4) coupled to the at least one display electrode (segment line 406 of fig. 4) for receiving display data to the display device (LCD driving circuitry comprises SEG driver 444 of fig. 4, col. 4, lines 63 – 66); a measuring circuit coupled to the at least one display electrode (measuring circuit 403 of fig. 4); and switching means (switch 407 of fig. 4) for connecting the interface (SEG driver 444 of fig. 4) to the at least one display electrode (segment line 406 of fig. 4) when the switching means is in a first state of operation (when the switch 401 of fig. 4 is not opened, col. 5, lines 14 – 24) and for connecting the measuring circuit to the at least one display electrode when the switching means is in a second state of operation (col. 5, lines 14 – 17).

As to **claim 2** (dependent on 1), Lowles discloses a touch sensor, wherein the measuring circuit comprises a capacitance measuring circuit (col. 3, lines 47 – 50).

As to **claim 4** (dependent on 1), Lowles discloses a touch sensor, wherein the measuring circuit comprises: a signal generator (COM driver 446 of fig. 4) coupled to the at least one display electrode (408 of fig. 4) for providing a predetermined test signal to the display electrode (col. 5, lines 58 – 65); and a signal evaluating circuit (403 of fig. 4) coupled to the at least one display electrode (sample segment 406 of fig. 4) for receiving the test signal from the signal generator (col. 5, lines 58 – 65).

As to **claim 5** (dependent on 4), Lowles discloses a touch sensor according, wherein the signal evaluation circuit (403 of fig. 4) is adapted configured to detect a deviation in the test signal (change in voltage, col. 5, lines 15 – 17) when the switching means is in the second state of operation (col. 5, lines 14 - 17).

As to **claim 7** (dependent on 4) and **claim 16** (dependent on 5), Lowles discloses a touch sensor, wherein: the display device comprises a back substrate (substrate 118 of fig. 1) having a plurality of segments (common electrodes 116 of fig. 1); and the signal generator (COM driver 446 of fig. 4) is configured to apply the test signal to segments on the back substrate (common lines 408 of fig. 4).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 6 and 15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lowles.

As to **claim 6** (dependent on 4) and **claim 15** (dependent on 5), Lowles discloses a touch sensor according to claim 4, wherein: the display device comprises a front substrate (substrate 104 of fig. 1) having a plurality of segments (segment electrodes 108 of fig. 1); and the signal generator (COM driver 446 of fig. 4) is adapted configured to apply the test signal to the segments (common lines 408 of fig. 4).

Lowles fails to disclose applying test signal to segments on the front substrate.

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However, it would have been obvious to one of ordinary skill in the art at the time of the invention to interchange the function of segment electrodes and common electrodes, so as to provide an alternative set of electrodes for the application of a test signal, since such modification would not alter the operation of the device and would only require a routine skill in the art.

5. **Claim 3** is rejected under 35 U.S.C. 103(a) as being unpatentable over Lowles in view of Penz (US 4,224,615).

As to **claim 3** (dependent on 1), Lowles teaches a touch sensor and the measuring circuit, but Lowles fails to disclose that the measuring circuit comprises a resistance measuring circuit.

In the same field of endeavor, Penz discloses a touch sensor, wherein the measuring circuit comprises a resistance measuring circuit (impedance comparison circuit 18 of fig. 5).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the touch sensor of Lowles by substituting capacitance measuring with impedance measuring, so as to adopt a liquid crystal device to receive input from a human operator (Penz, col. 1, lines 49 – 52).

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6. **Claims 8 and 17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lowles in view of Waldron (US 4,136,291).

As to **claim 8** (dependent on 6) and **claim 17** (dependent on 7), Lowles discloses a touch sensor, wherein the segments (common electrodes 116 of fig. 1) are located on the back substrate (substrate 118 of fig. 1) and wherein the segments (segment electrodes 108 of fig. 1) are located on the front substrate (substrate 104 of fig. 1).

Lowles fails to disclose a touch sensor, wherein segments not connected to the signal generator are retained in a high-ohmic state.

In the same field of endeavor, Waldron discloses a touch sensor, wherein segments not connected to the signal generator (disabled condition, col. 3, lines 25 – 63) are retained in a high-ohmic state (high impedance at the electrode, col. 3, lines 25 – 63).

Therefore, it would have been obvious to of ordinary skill in the art at the time of the invention to modify the device of Lowles by setting electrodes not connected to the signal generator to high-ohmic state, so as to maintain the output (Waldron, col. 3, lines 25 – 63).

7. **Claims 9 – 11 and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lowles in view of Eriksson (US 4,910,504).

As to **claim 9**, Lowles discloses a method for detecting a touch on a display device, said display device (LCD 409 of fig. 4) having a substrate (substrate 104 of fig. 1) on which at least one display electrode is disposed (electrode 108 of fig. 1), wherein said display electrode (segment line 406 of fig. 4) is coupled to an interface (SEG driver 444 of fig. 4) for receiving display data to the display device (LCD driving circuitry comprises SEG driver 444 of fig. 4, col. 4, lines 63 – 66), comprising the steps of: disconnecting the at least one display electrode from the interface (switch 407 of fig. 4, col. 5, lines 14 – 17); connecting said display electrode to a measuring circuit (measuring circuit 403 of fig. 4, col. 5, lines 14 – 17); and detecting a change in an electrical property (voltage, col. 5, lines 15 – 17) of the display electrode in the vicinity of the display electrode (col. 2, lines 18 – 24).

Lowles fails to disclose the method wherein a change in electrical property is due to an electrical coupling with an object touching the display device.

In the same field of endeavor, Eriksson discloses the method wherein a change in electrical property is due to an electrical coupling with an object touching the display device (col. 2, lines 13 – 16).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Lowles by detecting the change in electrical property due to an electrical coupling with an object touching the device, so as to extensively simplify circuit structure (Eriksson, col. 2, lines 24 – 29).

As to **claim 10** (dependent on 9), Lowles discloses a method, wherein detecting a change in an electrical property of the display electrode comprises: applying a predetermined test signal to the display electrode (COM driver 446 of fig. 4, applying test signal col. 5, lines 58 – 65) and detecting a deviation in the test signal (using measuring circuit 403 of fig. 4) in the vicinity of the display electrode (col. 2, lines 18 – 24).

Lowles fails to disclose the method wherein a change in electrical property is due to an electrical coupling with an object touching the display device.

In the same field of endeavor, Eriksson discloses the method wherein a change in electrical property is due to an electrical coupling with an object touching the display device (col. 2, lines 13 – 16).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Lowles by detecting the change in electrical property due to an electrical coupling with an object touching the device, so as to extensively simplify circuit structure (Eriksson, col. 2, lines 24 – 29).

As to **claim 11** (dependent on 9) and **claim 13** (dependent on 10), Lowles in view of Eriksson discloses a method, wherein the electrical coupling comprises a capacitive coupling (Eriksson, col. 4, lines 5 – 10).

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8. **Claims 12 and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lowles in view of Eriksson and Marten (US 2005/0270273).

As to **claim 12** (dependent on 9) and **claim 14** (dependent on 10), Lowles in view of Eriksson discloses a method for detecting a touch on a display device, but Lowles in view of Eriksson fails to disclose a method, wherein the electrical coupling comprises a galvanic coupling.

In the same field of endeavor, Marten discloses a method, wherein the electrical coupling comprises a galvanic coupling (galvanic connections, [0006]).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Lowles and Eriksson by substituting capacitive coupling with galvanic coupling disclosed by Marten, so as to provide an alternative means for detecting the position of users touch.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dmitriy Bolotin whose telephone number is (571)270-5873. The examiner can normally be reached on Monday-Friday, 8:00 AM - 5:00 PM EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amare Mengistu can be reached on (571)272-7674. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. B./
Examiner, Art Unit 2629

/Amare Mengistu/
Supervisory Patent Examiner, Art Unit 2629